

In the Claims

Applicant has submitted a new complete claim set indicating marked up claims with insertions and deletions indicated by underlining and strikeouts, respectively.

Please cancel claims 9-12 without prejudice or disclaimer.

Please amend pending claims 1-8 and 13-22 as noted below.

Please add new claims 23-25 as noted below.

1. (currently amended) A ~~ceramic~~ liquid transfer pin for transferring controlled volumes of a liquid from a tip thereof to a substrate, the ~~ceramic~~ pin defining a through hole extending to said tip, wherein the diameter of the through hole is at a minimum at said tip of the pin.
2. (currently amended) A ~~ceramic~~ The pin according to claim 1, wherein the through hole is of a uniform diameter along the whole length of the pin.
3. (currently amended) A ~~ceramic~~ The pin ~~for transferring controlled volumes of a liquid from a tip thereof to a substrate, the ceramic pin defining~~ according to claim 1, wherein the through hole is a capillary for holding liquid, ~~wherein the capillary extends to said tip of the pin.~~
4. (currently amended) A ~~ceramic~~ The pin ~~for transferring controlled volumes of a liquid from a tip thereof to a substrate,~~ according to claim 1, wherein the tip of the pin ~~having~~ has a face angle of less than four degrees, preferably substantially zero degrees.
5. (currently amended) A ~~ceramic~~ The pin ~~for transferring controlled volumes of a liquid from a tip thereof to a substrate, the tip of the pin defining a contact~~ according to claim 4, wherein the face is substantially perpendicular to the longitudinal axis of the pin.

6. (currently amended) ~~A liquid transfer~~ The pin for transferring controlled
~~volumes of liquid from a distal end thereof to a substrate, according to claim 3,~~
wherein ~~the pin defines a longitudinal capillary for holding liquid,~~ a distal portion
of the capillary being is selectively open in at least one radial direction.

7. (currently amended) ~~A liquid transfer~~ The pin for transferring controlled
~~volumes of liquid from a distal end thereof to a substrate, according to claim 3,~~
wherein ~~the pin defines a longitudinal capillary for holding liquid,~~ a distal portion
of the capillary being is selectively adapted for preventing blockage by
particulates.

8. (currently amended) ~~A liquid transfer~~ The pin for transferring controlled
~~volumes of liquid from a distal end thereof to a substrate, according to claim 3,~~
wherein ~~the pin defines a longitudinal capillary for holding liquid,~~ a distal portion
of the capillary being is adapted to facilitate the removal of blockages.

9. (canceled)

10. (canceled)

11. (canceled)

12. (canceled)

13. (original) A liquid transfer tool including a liquid transfer pin defining a
capillary for holding liquid and a holder for holding said pin in a predetermined
manner, said holder including at a distal. end thereof a longitudinal recess for
receiving a proximal end of said pin, and including a radial vent hole in
communication with said capillary via said recess.

14. (currently amended) A robotic device for automatically filling at least one capillary pin of a liquid transfer tool by dipping the tip of the pin in a source of the liquid, wherein ~~the speed at which the pin is dipped into the source of the fluid is~~ one or more parameters related to a desired pick-up volume are adjustable.

15. (currently amended) A ~~The~~ robotic device ~~for automatically filling at least one capillary pin of a liquid transfer tool by dipping the tip of the pin in a source of the liquid,~~ according to claim 14, wherein the length of time for which the tip of the pin is held in a source of the ~~fluid~~ liquid is adjustable.

16. (currently amended) A ~~The~~ robotic device ~~for automatically filling at least one capillary pin of a liquid transfer tool by dipping the tip of the pin in a source of the liquid,~~ according to claim 14, wherein the volume of liquid taken up by the capillary is adjustable.

17. (currently amended) A robotic device for automatically filling at least one capillary pin of a liquid transfer tool by lowering the pin into a source of the liquid to be transferred and then raising the pin out of the source of liquid, wherein the device includes ~~means~~ a detector for detecting the depth to which the at least one capillary pin is dipped into the source of liquid, and wherein the robotic device is programmed to determine the length of time for which the tip of the pin is to be held in the source of ~~fluid~~ liquid between the lowering and raising operations according to at least one parameter including the detected depth.

18. (original) A robotic device according to claim 17, wherein the depth to which the at least one capillary pin is dipped into tile source of liquid 'is detected by measuring the level of the liquid surface with respect to a reference point.

19. (original) A method of operating a robotic device for filling at least one capillary pin of a liquid transfer tool by dipping the tip of the at least one capillary pin into a source of the liquid, the method including the steps of. storing in a

memory of a computer of the robotic device data for determining the time for which the at least one capillary pin is to be dipped into the source of liquid; and inputting at a user interface one or more parameters relating to the desired pick-up volume; wherein the computer is operable to determine on the basis of said parameters the time for which the at least one capillary pin is to be dipped into the source of liquid.

20. (currently amended) A The robotic device ~~for automatically filling at least one capillary pin of a liquid transfer tool by dipping the tip of the at least one capillary pin into a source of the liquid, according to claim 14,~~ wherein the robotic device includes a user interface for a user to input one or more parameters relating to the desired pick-up volume, and a computer that is operable to determine on the basis of said one or more parameters the time for which the at least one capillary pin is to be dipped into the source of liquid.

21. (original) A method of cleaning a liquid transfer tool including an array of capillary pins for transferring controlled volumes of liquid from tips thereof to a substrate, the method including inserting the tips of the pins into respective counterbores connected to a vacuum pump, each counterbore provided with a sealing ring, wherein the relative dimensions of the counterbores and the sealing rings are selected so as to allow for misalignments between the pins and the centre axes of the counterbores whilst ensuring a good seal between each counterbore and the respective pin.

22. (original) A ceramic capillary pin for transferring controlled volumes of liquid to a substrate surface by the method of filling the capillary pin with the liquid to be transferred, contacting the tip of the pin with the substrate surface and then distancing the tip of the pin from the substrate surface at least until the fluid ligament connecting the tip of the pin and the substrate surface is broken, wherein the capillary pin has a tip that is shaped so as to maximise the consistency of the position of the fluid ligament with respect to the pin axis.

23. (new) The pin according to claim 1, wherein the pin is ceramic.
24. (new) The pin according to claim 4, wherein the face angle is substantially zero degrees.
25. (new) The robotic device according to claim 14, wherein a speed at which the pin is dipped into the source of the liquid is adjustable.